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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/525,524

02/24/2005

Masao Ushida

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SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

ALAM, RASHID A

ART UNIT

PAPER NUMBER

4191

MAIL DATE

DELIVERY MODE

12/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/525,524	<b>Applicant(s)</b> USHIDA ET AL.	
	<b>Examiner</b> RASHID A. ALAM	<b>Art Unit</b> 4191	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2-24-2005</u> .   | 6) <input type="checkbox"/> Other: _____                          |

**LITHOGRAPHY MASK BLANK**

Examiner: Rashid Alam    S.N.:10/525,524    Art Unit: 4191    December 18, 2007

***Claim Rejections - 35 USC § 102***

1.     The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.     Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Shiota (US 2002/0122991).

Regarding claims 1 and 4, Shiota et al. teach a halftone phase shift mask blank for use in manufacturing a halftone phase shift mask which has a transmission portion for transmitting an exposure light, and a phase shifter portion for transmitting a part of the exposure light and for shifting a phase of the transmitted light by a predetermined amount on a transparent substrate. The halftone phase shift mask has an optical property that is designed so as to mutually cancel out the respective transmitted lights in the vicinity of a boundary portion of said transmission portion and the phase shifter portion to thereby keep a contrast of a boundary portion of an exposure pattern transferred onto the surface of a material to be exposed, said blank having a phase shifter film for forming said phase shifter portion on the transparent substrate, wherein said phase shift mask is used in an exposure light wavelength range of 140 nm to 200

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nm, said phase shifter film is constituted of a film containing main elements of silicon, oxygen, and nitrogen, and contains 35 to 45% of silicon, 1 to 60% of oxygen, and 5 to 60% of nitrogen in atomic percentage, and a total amount of these elements is not smaller than 90% in a whole composition constituting said phase shifter film (see page 10 paragraph 0115). Shiota et al. also teach that suitable materials of the etching stopper film (ammonium ion production preventing layer) include one or two or more materials selected from magnesium, aluminum, titanium, vanadium, chromium, yttrium, zirconium, niobium, molybdenum, tin, lanthanum, tantalum, tungsten, silicon, and hafnium, a compound (oxide, nitride, nitric oxide) of these elements, and the like (see page 5 paragraph 0080).

Regarding claim 2, the difference in nitrogen between the two layers is present in Shiota. It is mentioned in two different layers of film, the composition of the layers are altered. The amount of nitrogen is changed between the two layers (see page 2 paragraphs 0022 and 0030).

Regarding claims 3, 8, and 9, It is noted that these claims are product-by-process claims. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Since Shiota's mask

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is similar to that of the Applicant's, Applicant's process is not given patentable weight in this claim.

Regarding claims 5 and 6, Shiota discloses a two layer film, one layer containing less nitrogen than the other. Also, it can be seen in figure 4A, the similarity to figure 1, 2 of the application being examined, the two different layers to be used in the process aforementioned. Shiota goes on to teach a light semi-transmission film of the halftone phase shift mask (see page 5, paragraphs 0065 and 0066).

Regarding claim 7, Shiota teaches a phase shifter film satisfactory in a resistance to exposure light irradiation, resistance to chemicals, processability, moldability, and shape stability. The halftone phase shift mask blank having the phase shifter film on a transparent substrate is used in an exposure light wavelength range of 140 nm to 200 nm, the phase shifter film is formed of a film containing main constituting elements of silicon, oxygen, and nitrogen, and contains 35 to 45% of silicon, 1 to 60% of oxygen, and 5 to 60% of nitrogen in atomic percentage, and a total amount of the elements occupies at least 90% or more of a whole composition constituting the phase shifter portion (see abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RASHID A. ALAM whose telephone number is (571)270-3959. The examiner can normally be reached on Monday to Friday 7:30am-5pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 4191